



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------------------|-----------------------------|
| 10/538,657 | 11/03/2005 | Kazuhiko Minami | 272988US90PCT | 7296 |
| 22850 | 7590 | 09/11/2008 | | |
| OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314 | | | EXAMINER ZIMMERMAN, JOHN J | |
| | | | ART UNIT 1794 | PAPER NUMBER |
| | | | NOTIFICATION DATE 09/11/2008 | DELIVERY MODE ELECTRONIC |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdocket@oblon.com
oblonpat@oblon.com
jgardner@oblon.com

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/538,657 | Applicant(s) MINAMI ET AL. | |
| | Examiner John J. Zimmerman | Art Unit 1794 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 6/10/2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>20050610, 20061013, 20080410</u> . | 6) <input type="checkbox"/> Other: ____. |

FIRST OFFICE ACTION

Preliminary Amendments

1. This First Office Action considers the application as amended in the "PRELIMINARY AMENDMENT" received June 10, 2005. Claims 1-25 are pending in this application.

Priority

2. Receipt is acknowledged of copies of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statements received June 10, 2005 and October 13, 2006 and April 10, 2008 have been considered. Initialed forms PTO-1449 are enclosed with this First Office Action.

Claim Rejections - 35 USC § 102/103

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 1794

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, 4 and 5 are rejected under 35 U.S.C. 102(b) as anticipated by Shiyouji (JP 08-090278).

7. Shiyouji discloses an aluminum alloy brazing material for heat exchangers containing 12 wt.% Si, 1.5 wt.% Zn, 0.5 wt.% Cu (e.g. see Table 1, sample 6). The heat exchanger parts include tube material, plate material, fin material, etc. . . (e.g. see paragraph [0001]). Although Shiyouji may not require Mn, Shiyouji anticipates dependent claim 5 since no Mn is required as long as the condition for Cu is met in independent claim 1.

8. Claims 1-5 are rejected under 35 U.S.C. 102(b) as anticipated by Hirano (JP 07-088682).

9. Hirano discloses an aluminum alloy brazing material for heat exchangers containing 10 wt.% Si, 4.0 wt.% Zn, 0.4 wt.% Cu (e.g. see Table 1, sample 7). As shown in Figures 1-2, the heat exchanger parts include tube material, plate material, fin material, etc. . . (e.g. see paragraphs [0002]-[0003]). Although Hirano may not require Mn, Hirano anticipates dependent claim 5 since no Mn is required as long as the condition for Cu is met in independent claim 1.

Art Unit: 1794

10. Claims 1-10, 13-16, 19-21 and 23-25 are rejected under 35 U.S.C. 102(b) as anticipated by Doko (U.S. Patent 5,837,388).

11. Doko discloses an aluminum alloy solder material containing 7.0-12 wt.% Si, 0.4-8.0 wt.% Cu, 0.5-6.0 wt.% Zn, 0.05-1.2 wt.% Mn and 0.05-0.5 wt.% Fe (e.g. see column 4, lines 16-25). Although Doko calls his alloy a "solder material", it is acknowledged by Doko to be a "brazing" material (e.g. see column 3, line 61 - column 4, line 4). The examiner further notes that the nomenclature (e.g. "brazing", "solder", etc. . .) used to describe the material does not alter the composition and properties of the material. Doko discloses specific aluminum alloy examples with 10.5 wt.% Si, 0.2 wt.% Fe, 0.6 wt.% Cu, 0.3 wt.% Mn and 5 wt.% Zn (e.g. Example No. 3 in Table 2). Although it is noted that Doko may include Fe, the term "consisting essentially of" (e.g. claim 1, line 1) allows for additional alloying constituents which do not affect the basic and novel characteristics of the invention, *Ex parte Davis, et al.*, 80 USPQ 448 (PTO Bd. App. 1948); *In re Janakirama-Rao*, 137 USPQ 893 (CCPA 1963). See also MPEP 2111.03. Should applicant contend that modifying components in the prior art compositions are excluded by the recitation of "consisting essentially of", applicant has the burden of showing that the basic and novel characteristics of their composition are materially affected by those components, *In re De Lajarte*, 143 USPQ 256 (CCPA 1964). No evidence of record shows that Doko's inclusion of Fe affects the novel and basic characteristics of applicant's invention and therefore Doko's inclusion of Fe is not considered prohibited by the "consisting essentially" language of the pending claims. Regarding claims where Doko may not disclose specific

Art Unit: 1794

aluminum alloy examples in the claimed range (e.g. see claims 4 and 5), the example alloys in Doko's Table 2 fall sufficiently close and around the claimed alloy that combined with the ranges disclosed by Doko (e.g. column 5, lines 41-51), the alloys of the pending claims are taught with *sufficient specificity* to be *anticipated* by Doko. See MPEP 2131.03. Regarding pending claims to sprayed layers of aluminum alloy brazing material, Doko clearly discloses that spraying the aluminum alloy is considered his invention (e.g. see column 8, lines 4-8). Doko's aluminum alloy is intended for brazing together heat exchanger parts including the tubes, header and fin members (e.g. column 13, lines 13, lines 43-47; see Table 6 for specific examples). Specific combinations of these heat exchanger parts are also shown in Figures 1-10. Conditions of brazing are given in the Examples and appear to be at normal pressures. The aluminum alloy core material for Doko's invention can include 0.05-2.5 wt.% Cu and 0.05-2.0 wt.% Mn (e.g. column 10, lines 31-48) when used for fluid passages.

12. Claims 1-25 are rejected under 35 U.S.C. 103(a) as obvious over Doko (U.S. Patent 5,837,388), alone, or further in view of Hirano (JP 07-088682) or Dokou (JP 10-265881).

13. Doko discloses an aluminum alloy solder material containing 7.0-12 wt.% Si, 0.4-8.0 wt.% Cu, 0.5-6.0 wt.% Zn, 0.05-1.2 wt.% Mn and 0.05-0.5 wt.% Fe (e.g. see column 4, lines 16-25). Although Doko calls his alloy a "solder material", it is acknowledged by Doko to be a "brazing" material (e.g. see column 3, line 61 - column 4, line 4). The examiner further notes that the nomenclature (e.g. "brazing", "solder", etc. . .) used to describe the material does not alter the composition and properties of the material. Doko discloses specific aluminum alloy

Art Unit: 1794

examples with 10.5 wt.% Si, 0.2 wt.% Fe, 0.6 wt.% Cu, 0.3 wt.% Mn and 5 wt.% Zn (e.g. Example No. 3 in Table 2). Although it is noted that Doko may include Fe, the term "consisting essentially of" (e.g. claim 1, line 1) allows for additional alloying constituents which do not affect the basic and novel characteristics of the invention, *Ex parte Davis, et al.*, 80 USPQ 448 (PTO Bd. App. 1948); *In re Janakirama-Rao*, 137 USPQ 893 (CCPA 1963). See also MPEP 2111.03. Should applicant contend that modifying components in the prior art compositions are excluded by the recitation of "consisting essentially of", applicant has the burden of showing that the basic and novel characteristics of their composition are materially affected by those components, *In re De Lajarte*, 143 USPQ 256 (CCPA 1964). No evidence of record shows that Doko's inclusion of Fe affects the novel and basic characteristics of applicant's invention and therefore Doko's inclusion of Fe is not considered prohibited by the "consisting essentially" language of the pending claims. In any event, Doko clearly discloses the function of Fe and also discloses the inclusion of ineffective amounts of Fe (e.g. column 7, lines 34-48) and therefore the elimination of this additive with the resultant loss of its function would have been obvious to one of ordinary skill in the art at the time the invention was made if the function is not necessary or desired for a particular brazing sheet end use. See MPEP 2144.04(II). Omitting an additive meant for improvement of the alloy of Doko, simply results in the prior art alloy before addition of the improvement and is not considered a patentably distinction over the disclosure of Doko. Regarding claims where Doko may not disclose specific aluminum alloy examples in the claimed range (e.g. see claims 4 and 5), Doko's ranges overlap those claimed by applicant and therefore the subject matter as a whole would also have been obvious to one having ordinary skill in the art at the time the invention was made to have selected the overlapping portion of the

Art Unit: 1794

range disclosed by the reference because overlapping ranges have been held to be a *prima facie* case of obviousness, see *In re Malagari*, 182 USPQ 549. In the case where the claimed ranges “overlap or lie inside ranges disclosed by the prior art” a *prima facie* case of obviousness exists. See *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990); *In re Geisler*, 116 F.3d 1465, 1469-71, 43 USPQ2d 1362, 1365-66 (Fed. Cir. 1997). See also MPEP 2144.05. Regarding pending claims to sprayed layers of aluminum alloy brazing material, Doko clearly discloses that spraying the aluminum alloy is considered his invention (e.g. see column 8, lines 4-8). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to spray the brazing alloy of Doko onto the substrates instead of roll cladding. Doko's aluminum alloy is intended for brazing together heat exchanger parts including the tubes, header and fin members (e.g. column 13, lines 13, lines 43-47; see Table 6 for specific examples). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the brazing alloy of Doko onto any conventional combination (e.g. see Figures 1-10) of these heat exchanger parts when assembling and brazing a heat exchanger. Conditions of brazing are given in the Examples and appear to be at normal pressures. The aluminum alloy core material for Doko's invention can include 0.05-2.5 wt.% Cu and 0.05-2.0 wt.% Mn (e.g. column 10, lines 31-48) when used for fluid passages. Therefore the use of Al-Cu-Mn series alloys (e.g. JIS 3xxx type alloys) would have been obvious to one of ordinary skill in the art at the time the invention was made. Likewise, the examiner takes Official Notice that JIS A1000 series alloys are conventional widely used tube substrates in heat exchangers. Therefore, merely substituting JIS A1000 series alloys for those of Doko would have been obvious to one of ordinary skill in the art since this

Art Unit: 1794

series has a proven record for heat exchanger tubes and is industrially available for this use. In any event, Hirano is applied to clearly show that JIS 3003 tubing material and JIS 1000 system alloys (e.g. paragraphs [0002]- [0003], [0016]) are conventional substrates for braze materials in heat exchanger manufacture. Dokou is further applied to establish that substrates materials of JIS 3003, 3203, 1050 and 1100 are conventional substrate materials for heat exchanger parts (e.g. see paragraph [0003]). In view of Hirano or Dokou, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use conventional JIS 3xxx type and JIS 1xxx type alloys for the substrate of Doko since these are proven substrates for brazed heat exchangers. Regarding the Cu content of JIS 3003 being slightly lower than the Cu content of some of the substrates of the pending claims, a *prima facie* case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. See *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). See MPEP 2144.05.

14. Claims 1-25 are rejected under 35 U.S.C. 103(a) as obvious over Hirano (JP 07-088682) in view of Doko (U.S. Patent 5,837,388) or Dokou (JP 10-265881).

15. Hirano discloses an aluminum alloy brazing material for heat exchangers containing 10 wt.% Si, 4.0 wt.% Zn, 0.4 wt.% Cu (e.g. see Table 1, sample 7). As shown in Figures 1-2, the heat exchanger parts include tube material, plate material, fin material, etc. . . (e.g. see paragraphs [0002]-[0003]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the brazing alloy of Hirano onto any conventional

Art Unit: 1794

combination (e.g. see Figures 1-2) of these heat exchanger parts when assembling and brazing a heat exchanger. Conditions of brazing appear to be at normal pressures. Although Hirano may not require Mn, Hirano anticipates dependent claim 5 since no Mn is required as long as the condition for Cu is met in independent claim 1. Hirano also discloses that JIS 3003 tubing material and JIS 1000 system alloys (e.g. paragraphs [0002]-[0003], [0016]) are to be used for his substrates for the braze materials in his heat exchanger manufacture. Regarding the Cu content of JIS 3003 being slightly lower than the Cu content of some of the substrates of the pending claims, a *prima facie* case of obviousness exists where the claimed ranges and prior art ranges do not overlap but are close enough that one skilled in the art would have expected them to have the same properties. See *Titanium Metals Corp. of America v. Banner*, 778 F.2d 775, 227 USPQ 773 (Fed. Cir. 1985). See MPEP 2144.05. Hirano may differ from some of the pending claims in that Hirano may not use spraying to apply the brazing alloy to the substrates. Doko, however, clearly shows that it is well understood in the brazing sheet art that applying braze by spraying is an obvious alternative to conventional roll cladding (e.g. see column 8, lines 4-8). Dokou is further applied to clearly show that it is well understood in the brazing sheet art that applying braze by spraying is an obvious for heat exchanger parts, particularly extruded piping, because it is difficult to carry out cladding by extrusion or drawing (e.g. see paragraph [0023]). In view of Doko or Dokou, it would have been obvious to one of ordinary skill in the art at the time the invention was made to apply the brazing alloy of Hirano to the substrates by a spraying process because Doko and Dokou clearly show that spraying is an art recognized and obvious alternative method of applying braze to heat exchanger part substrates.

Art Unit: 1794

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The additional prior art made of record serves to further establish the level of ordinary skill in the art.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to John J. Zimmerman whose telephone number is (571) 272-1547. The examiner can normally be reached on 8:30am-5:00pm, M-F. Supervisor Rena Dye can be reached on (571) 272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

18. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

John J. Zimmerman
Primary Examiner
Art Unit 1794

Application/Control Number: 10/538,657

Page 11

Art Unit: 1794

/John J. Zimmerman/

Primary Examiner, Art Unit 1794

jjz

September 7, 2008